

The Effectiveness of Reproductive Health Education Programs by Community Nurses on the Knowledge of High School Adolescents

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ABSTRACT

Adolescent reproductive health is an important issue due to early marriage, unwanted pregnancy, and sexually transmitted diseases associated with limited reproductive health knowledge. High school adolescents are vulnerable to risk behaviors because of inadequate access to accurate health information, highlighting the need for structured interventions by health workers. Community nurses play a strategic role in providing reproductive health education in schools. This study aimed to analyze the effectiveness of a reproductive health education program delivered by community nurses in improving adolescents' knowledge. A quasi-experimental one-group pretest-posttest design was conducted at SMA Negeri 9 Padang involving 62 Grade X and XI students selected through purposive sampling. Data were collected using a valid and reliable reproductive health knowledge questionnaire before and after a four-week educational intervention. Univariate analysis described respondent characteristics and knowledge levels, while the Wilcoxon test was used because the data were not normally distributed. The mean knowledge score increased from 58.4 (poor category) before intervention to 84.7 (good category) afterward, with 88.7% of respondents showing improved knowledge. The Wilcoxon test indicated a significant difference between pretest and posttest scores ($p=0.000$; $p<0.05$). Reproductive health education by community nurses effectively improved adolescents' knowledge and supports integration into school curricula, UKS activities, and partnerships between community health centers and schools.

Keywords: Reproductive Health, Nursing, Knowledge, Youth, Education



INTRODUCTION

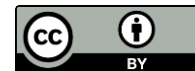
Reproductive health is one of the benchmarks for the well-being of the younger generation that has received worldwide attention, because adolescence is an important phase in the formation of sexual and reproductive behavior that can have a long-term impact on adulthood. Global Data shows that pregnancy in adolescence is still a public health problem because it can have an impact on the continuity of education, physical condition, psychological, and social life of adolescents. Pregnancy and childbirth at a young age are also associated with various social consequences such as stigma, limited educational opportunities, as well as increased vulnerability to reproductive health problems. This condition shows that strengthening adolescent reproductive health is still a big challenge in various countries, including Indonesia (United Nations Children's Fund [UNICEF], 2024).

One of the factors that contribute to the high level of adolescent reproductive health problems is the limited knowledge and not optimal access to information and reproductive health services in accordance with the needs of adolescents. Barriers to the use of adolescent reproductive health services can be a lack of information, limited environmental support, cultural factors, and not optimal approach to youth-friendly services. This condition shows the importance of providing reproductive health education that is planned, sustainable, and easily accepted by adolescent groups (Aima & Erwandi, 2024).

At the national level, efforts to improve adolescent reproductive health are part of a health development strategy that emphasizes the importance of Health Promotion and education from school age. Reproductive health education is needed to improve adolescents' understanding of physical, psychological changes, healthy sexual behavior, and Prevention of various reproductive health problems. Strengthening reproductive health education also requires the involvement of various parties, including health workers who have the competence to provide health information appropriately and in accordance with the characteristics of adolescents (Puspasari & Ratmanasuci, 2026).

The problem of adolescent reproductive health knowledge is also still found in various regions in Indonesia. Research on reproductive health knowledge in high school students shows that some adolescents still have a level of understanding that is not optimal regarding aspects of reproductive health. This condition illustrates that reproductive health education in the school environment still needs to be strengthened through a more systematic approach and involving health workers as a competent source of information (Putra et al., 2022).

The lack of knowledge of adolescents about reproductive health can be influenced by the limited information obtained through formal education and information sources available in the surrounding environment. Adolescents are in a phase of development characterized by high curiosity and the need for correct information about reproductive health. If the information needs are not met through reliable sources, adolescents are at risk of obtaining inappropriate information from the social environment and digital media. Therefore, educational strategies are needed that



are able to provide information correctly, interestingly, and in accordance with the level of cognitive development of adolescents (pombaile et al., 2026).

Community nurses have a strategic position in bridging the needs of adolescent reproductive health education because one of the main roles of nurses is as health educators. Community nurses not only play a role in providing curative services, but also have the responsibility of increasing public knowledge and awareness through health promotion activities. In the school context, nurses can contribute through reproductive health education programs integrated with school health activities. The involvement of nurses as health professionals is expected to increase the effectiveness of delivering reproductive health information because the material is given in a structured manner based on target needs (Nurkhofifa et al., 2025).

The success of involving health workers in reproductive health education programs has been proven through various intervention studies in Indonesia. Research on adolescents of SMA Negeri 7 Manado showed that the provision of reproductive health education was able to significantly increase adolescent knowledge after intervention. The difference in the level of knowledge before and after Health Education shows that education provided in a structured manner with the right methods is able to increase adolescents ' understanding of reproductive health (Lapian & Tarek, 2022).

In addition to improving aspects of knowledge, reproductive health education also plays a role in shaping adolescents ' attitudes towards reproductive health issues. Research on the influence of health education on adolescent attitudes shows that the provision of health education is able to provide a more positive attitude change towards reproductive health. This shows that reproductive health education not only serves to improve cognitive aspects, but also has the potential to affect affective aspects related to the formation of Adolescent Health Behavior (Setiawati et al., 2022).

Other studies have also shown that structured reproductive health education can significantly improve adolescent knowledge. Providing health education with an approach that matches the characteristics of adolescents has been shown to be effective in increasing understanding of reproductive health. The consistency of the results of the study shows that reproductive health education can be applied to various groups of adolescents with different social and geographical backgrounds (Trihartiningsih & Putri, 2023).

The effectiveness of reproductive health education is also strengthened through research using a variety of learning approaches. Community-based education is proven to be able to improve the knowledge and attitudes of adolescents because it provides an opportunity for participants to obtain information directly and interact with education providers. This approach shows that the success of health education is not only determined by the material provided, but also the method of delivery and the active involvement of participants during the learning process (Pratiwi & Lismayanti, 2026).

A review of the literature on adolescent reproductive health education shows that active and continuous provision of health information is an effective strategy in increasing knowledge



and supporting changes in reproductive health behavior. Various studies have shown that groups of adolescents who obtain structured education tend to have increased knowledge compared to groups that only obtain information passively. Therefore, it is necessary to develop reproductive health education programs that actively involve health workers, including community nurses, especially in high school environments (Anggariyanti, 2025).

Based on these findings, it can be seen that reproductive health education carried out systematically has an important role in improving adolescent knowledge. However, most previous studies have focused on the effectiveness of health education in general, while studies on the involvement of community nurses as the main implementers of reproductive health education in the school environment still need to be developed further. This is the basis of the importance of research on the role of community nurses in providing reproductive health education to high school students.

Starting from the series of data and research findings above, it is clear that the issue of adolescent reproductive health knowledge is not only a global or national issue, but also a concrete problem that occurs in high school adolescents in Padang City, with special research gaps on the role of community nurses that have not been explored much. SMA Negeri 9 Padang, as one of the public high schools in Padang, is estimated to have diverse student characteristics in terms of socio-economic background and understanding of reproductive health, so it is relevant to be chosen as a research location to photograph and test the effectiveness of community nurse-based educational interventions. The researchers' interest in this theme stems from the gap between national regulations that have required reproductive health education for adolescents and its implementation in the field which is still far from optimal, Plus the lack of scientific evidence regarding the effectiveness of the special role of community nurses in this context. On that basis, researchers are interested in conducting research on the effectiveness of reproductive health education programs by community nurses on the knowledge of high school adolescents in SMA Negeri 9 Padang, with the hope that the results of this study can contribute empirical evidence that is useful for the development of school-based health promotion programs in the future.

METHODS

This study aims to analyze the effectiveness of reproductive health education programs by community nurses to increase the knowledge of high school adolescents. The study design used was quasi-experimental with the design of one group pretest-posttest design, where the same group measured its knowledge before and after the intervention was given without a comparative control group. The study was conducted in SMA Negeri 9 Padang with a population of all students in Class X and XI. The research sample was 62 students who were selected using purposive sampling technique based on inclusion criteria, namely active students of Class X and XI, willing to be respondents and follow the entire series of educational programs to completion, have never received structured reproductive health counseling from health workers in the last six months, and are fully present at the time of pretest and posttest data collection. The exclusion

criteria include students who are unable to attend one of the intervention Sessions, resign in the middle of the research process, or have reading and writing limitations that hinder the independent filling of the questionnaire.

Data collection using reproductive health knowledge questionnaire instruments that have been tested for validity and reliability, with the value of R count on each question item is greater than R table and cronbach's Alpha coefficient above 0.70 so that the instrument is declared valid and reliable to use. Questionnaires were given to respondents twice, namely before (pretest) and after (posttest) the provision of reproductive health education interventions carried out by community nurses for four weeks through the method of lectures, group discussions, and audiovisual media. Before data collection was conducted, this study has obtained the consent of the respondents, where each respondent was given an explanation of the objectives, procedures, benefits, and the right to refuse or resign without any consequences, then signed a consent sheet (informed consent) as proof of willingness to participate voluntarily. Univariate analysis was used to describe the characteristics of respondents and the distribution of knowledge levels before and after the intervention, while bivariate analysis used Wilcoxon Signed Rank Test because the results of the normality test showed that the data were not normally distributed, in order to analyze the difference in knowledge scores of respondents before and after the provision of reproductive health education programs.

RESULTS

1. Characteristics of Respondents

The following is an overview of the characteristics of the study respondents, including age, gender, and class, in order to provide demographic context to the sample under study.

Tabel 1. Characteristics of Respondents (n=62)

Characteristics	Categories	f	%
Age	15 years old	14	22,6
	16 years old	28	45,2
	17 years old	20	32,2
Gender	Men	27	43,5
	Girls	35	56,5
Classes	X	33	53,2
Characteristics	XI	29	46,8

Table 1 shows that most respondents are 16 years old (45.2%), dominated by female gender (56.5%), and slightly more are from Class X (53.2%) than Class XI (46.8%). The distribution of these characteristics is relatively evenly distributed between age groups and classes, so that the sample can be considered representative enough to describe the adolescent population of SMA Negeri 9 Padang in the range of classes X and XI.



2. Distribution of Knowledge Levels of Respondents Before and After the Intervention

Univariate analysis was conducted to describe the level of knowledge of respondents about reproductive health before (pretest) and after (posttest) given reproductive health education programs by community nurses.

Table 2. Distribution of Knowledge Levels of Respondents Before and After the Intervention (n=62)

Level of Knowledge	Pretest (f)	Pretest (%)	Posttest (f)	Posttest (%)
Good	9	14,5	55	88,7
Enough	22	35,5	6	9,7
Less	31	50,0	1	1,6
Total	62	100	62	100

Statistics	Pretest	Posttest
Average (Mean)	58,4	84,7
Standard Deviation	9,8	6,3
Minimum Score	40	65
Maximum Score	78	100

Table 2 shows that before the intervention, half of the respondents (50.0%) were in the lack of knowledge category with an average score of 58.4. After being given a four-week reproductive health education program, there was a significant shift in distribution, where the majority of respondents (88.7%) moved to the good knowledge category with an average score increasing to 84.7. An increase in the average score of 26.3 points and a sharp decrease in the proportion of under categories (from 50.0% to 1.6%) indicated an improvement in the respondents' understanding descriptively after receiving education from community nurses.

3. The Effectiveness of Reproductive Health Education Programs By Community Nurses to Increase the Knowledge of High School Adolescents

Bivariate analysis was conducted using the Wilcoxon Signed Rank Test to test the difference in knowledge scores of respondents between before and after the provision of reproductive health education programs, considering the results of the normality test (Shapiro-Wilk) showed abnormally distributed data ($p < 0.05$). This test is presented in two tables, namely the table of ranks (ranks) and the table of Test statistics (test statistics), as is usually the output of the Wilcoxon test.

Table 3. Rank Differences in Knowledge Before and After Intervention (n=62)

Comparison	N	Mean Rank	Sum of Rank
Negative Ranks (Posttest < Pretest)	2	8,50	17,00
Positive Ranks (Posttest > Pretest)	58	31,53	1.828,00

Comparison	N	Mean Rank	Sum of Rank
Ties (Posttest = Pretest)	2	0,00	0,00
Totally	62		

Table 3 shows that of 62 respondents, 58 respondents (93.5%) experienced an increase in knowledge scores after the intervention (positive ranks) with a mean rank of 31.53, only 2 respondents (3.2%) experienced a decrease in scores (negative ranks) with a mean rank of 8.50, and 2 respondents (3.2%) did not experience any change in scores at all (ties). The significantly higher number and magnitude of positive ratings compared to Negative Ratings indicates that the direction of knowledge change in the majority of respondents is moving towards improvement after the intervention.

Table 4. Wilcoxon Signed Rank Test (n=62)

Test Statistics	Value
Z	-6,742 ^b
Asymp. Sig. (2-tailed) / p-value	0,000
Level of significance (α)	0,05
Basic description of the rating	^b based on negative ranks

Table 4 shows a Z value of -6.742 with a p value of 0.000. Because the value of p (0.000) < the value of α (0.05), H₀ was rejected and H_a was accepted, which means there is a statistically significant difference between the level of knowledge of respondents before and after being given reproductive health education programs by community nurses.

DISCUSSION

The data in Table 2 shows that before the reproductive health education program was given, some respondents were still in the category of lacking knowledge. These conditions indicate that most students still have limited understanding of reproductive health before obtaining educational interventions. This initial overview is an important basis for evaluating changes in knowledge after being given reproductive health education by community nurses.

After undergoing an educational program for four weeks, there was an increase in the level of knowledge of respondents. The proportion of respondents with good knowledge category has increased, while the group with less knowledge category has decreased. The increase in the average knowledge score after the intervention showed that the reproductive health education program was able to have a positive impact on students' understanding of the material provided.

The results of this increase in knowledge are in line with research on adolescents of SMA Negeri 7 Manado which found an increase in reproductive health knowledge after being given health education. Health education provided in a structured manner allows adolescents to obtain information that they previously did not understand so that there is an increase in their ability to answer questions related to reproductive health (Lapian & Tarek, 2022).



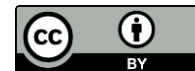
The magnitude of the increase in knowledge after the intervention was also consistent with research on the effect of health education on adolescent reproductive knowledge which showed that health education was able to significantly improve participants' understanding. The provision of information that is carried out systematically and repeatedly helps adolescents understand the concept of reproductive health better (Trihartiningsih & Putri, 2023).

The improvement of knowledge in this study also supports the results of research on the effect of community-based reproductive health education which shows that educational approaches can improve the knowledge and attitudes of adolescents. Direct interaction between health workers and adolescents is one of the factors that supports the success of the learning process because participants can get clarification of information directly (Pratiwi & Lismayanti, 2026).

The increase in knowledge in this study is also in line with the results of a study on the influence of health education on adolescent reproductive health knowledge, which shows that the provision of Health Education programmatically able to significantly boost the knowledge score of respondents. Juwita, Prihatini, Amal, and Yusuf (2023) emphasize that the success of health education depends heavily on the maturity of the material, the intensity of the meeting, and the ability of the education provider to convey information in a way that is easily digested by adolescents. The four-week duration applied to this study is in accordance with the recommendation that health education should not only be done once a meeting, but takes place continuously so that information is really pervasive. This congruence reinforces the notion that repeated intervention designs over several weeks contributed to the magnitude of the surge in knowledge achieved in this study (Juwita, Prihatini, Amal, & Yusuf, 2023).

The use of the lecture method as one of the elements of intervention in this study was also reinforced by the results of the study of the effectiveness of counseling methods to increase the knowledge of adolescents about HIV/AIDS, which also found that only a handful of respondents experienced a decrease in knowledge scores after the intervention. The similarity of this pattern in the majority of respondents increased and only a few remained or decreased indicating that the lecture method combined with supporting media is still relevant for use in adolescent health education, even though it is classified as a classical method. The study also concluded that the success of the lecture method is highly dependent on the credibility and closeness of communication between the material giver and the adolescent audience. This is in line with the context of this study, where the involvement of community nurses as a credible health worker figure is thought to contribute to the magnitude of knowledge changes that occur.

When examined from the theory of cognitive domain, the shift in the proportion of knowledge that was originally dominated by less categories to be dominated by good categories can be explained through the six levels of knowledge proposed by Notoatmodjo, namely know, understand, application, analysis, synthesis, and evaluation. Before the intervention, the majority of respondents were estimated to be at the "know" Stage, which was limited to remembering pieces of information without a complete understanding, as Widyaningsih (2021) explained that



the lowest cognitive level was only in the form of the ability to mention or define without being able to elaborate further. After four weeks of structured education through lectures, discussions, and audiovisual media, respondents received repeated opportunities to digest information to move up to the stage of "understanding" and even "application", which is evident from the ability to answer the posttest questionnaire with a much higher score. This shift in cognitive level theoretically underlies the jump in the proportion of good categories from 14.5% to 88.7% in this study (Widyaningsih, 2021).

Viewed from the Health Belief Model, this significant increase in knowledge can also be interpreted as the result of cues to action (cues to action) through the presence of community nurses who convey reproductive health risk information directly to adolescents. This Model explains that changes in perception of vulnerability and the severity of a health problem can encourage a person to be more open to receiving and processing new information, so that the learning process becomes more memorable than just reading the material itself. The presence of health workers as a source of information that is seen as competent reinforces these cues, since adolescents tend to trust information submitted directly by professionals more than unofficial sources. Thus, the magnitude of the change in knowledge in this study can be viewed as concrete evidence of the mechanisms described in the Health Belief Model (Nurmala, 2020).

Referring to the Precede-Proceed Model, the presence of community nurses as education providers can be placed as an enabling factor that facilitates changes in predisposing factors in the form of adolescent knowledge. This Model affirms that the increase in knowledge does not come solely from individual internal factors, but is strongly influenced by the availability of adequate resources and health personnel to reach the target group directly. In this study, regularly scheduled educational programs for four weeks reflect how neatly arranged enabling factors can optimize the process of changing knowledge in school groups of adolescents. This framework provides a coherent theoretical explanation for why professional health-based interventions tend to produce greater changes in knowledge than incidental education, as many schools have done independently (Nurmala, 2020).

The large proportion of lack of knowledge in the initial conditions of this study is also relevant to the findings in SMK adolescents in Padang city, which shows that low knowledge is closely related to high risk behavior in the context of adolescent reproductive health Triad. The similarity of the local context of Padang city in these two studies further confirms that increasing knowledge through structured interventions is not just an academic achievement, but has the potential to be a preventive measure against risky sexual behavior, substance abuse, and transmission of sexually transmitted infections in local adolescents. Aini, Afriyani, and Hilwa (2025) underline that adequate knowledge is an important protective factor that needs to be strengthened, considering that the trend of adolescent risk behavior in Padang City is still relatively high. The relevance of this finding shows that the results of research at SMA Negeri 9 Padang do not stand alone, but contribute to the big picture of adolescent reproductive health issues in Padang City as a whole (Aini, Afriyani, & Hilwa, 2025).



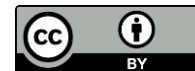
Researchers suspect that the increase in knowledge in this study can not be separated from the combination of educational methods used, namely a combination of lectures, group discussions, and audiovisual media, which allows respondents to absorb information through more than one sensory channel at once so that the material is easier to remember and understand. In addition, the credibility factor of community nurses as health professionals is thought to have helped boost students' trust and openness in discussing reproductive health topics that have often been considered taboo, both at school and in families. An interactive and non-judgmental learning atmosphere is likely to also make students more daring to ask and express things that they have not understood, so that the knowledge transfer process runs more optimally than one-way learning. The combination of method factors, facilitator credibility, and learning atmosphere is what researchers suspect to be the main cause of achieving a significant increase in knowledge in this study.

Overall, the researchers are of the view that the results of this study confirm the importance of the sustainability of reproductive health education programs based on professional health workers in the school environment, not just a one-time ceremonial meeting, but a scheduled program that integrates with school health business activities. The compatibility between the findings of this study with various theories and previous research is increasingly convincing that the increase in knowledge is not just a coincidence, but the real impact of systematically designed interventions. Researchers also suspect that similar success could be replicated in other schools in Padang if community nurses are involved on a regular and ongoing basis, rather than relying only on occasional counseling from puskesmas. Thus, the results of this univariate analysis provide a solid foundation to support recommendations to strengthen the role of community nurses as an integral part of the adolescent reproductive health promotion system in high school.

Based on Table 3, most respondents experienced an increase in knowledge scores after being given reproductive health education interventions. The predominance of positive ranks over negative ranks indicates that the direction of change in knowledge of respondents tends to increase after obtaining education from community nurses. Only a small percentage of respondents experienced a decrease in score and did not experience changes, so in general the intervention showed a tendency to have a positive impact on increasing knowledge of adolescent reproductive health.

The Wilcoxon Signed Rank Test results in Table 4 showed a significant difference between knowledge scores before and after reproductive health education. A significance value that is smaller than the significance level of 0.05 indicates that there is a significant change in knowledge after the intervention. Thus, reproductive health education provided by community nurses proved effective in improving the knowledge of students of SMA Negeri 9 Padang about reproductive health.

The results of this study are in line with research on adolescents of SMA Negeri 7 Manado which shows a significant difference in knowledge before and after the provision of reproductive health education. Health education provided systematically allows adolescents to obtain new



information and improve previously limited understanding of reproductive health (Lapian & Tarek, 2022).

A significant increase in knowledge in this study is also supported by research on the influence of health education on adolescent reproductive health knowledge. The results showed that the provision of health education in a structured manner able to increase the knowledge of respondents in a meaningful way. The success was influenced by the quality of materials, delivery methods, and active involvement of participants during the health education process (Juwita et al., 2023).

The results of this study also have links with research on the relationship of the level of knowledge and attitudes of adolescents with adolescent reproductive health Triad behavior. The study shows that reproductive health knowledge has a relationship with adolescent health behavior, so that increasing knowledge through educational interventions can be one of the prevention strategies against risky behavior in adolescents (Aini et al., 2025).

The findings of this study further reinforce that reproductive health education is an effective approach to improve adolescent understanding. Various studies have shown that reproductive health education through a structured approach can improve the knowledge of adolescents on various population characteristics. This shows that health education methods have the potential to be widely applied in the school environment (Trihartiningsih & Putri, 2023).

In terms of cognitive theory, the increase in knowledge scores after the intervention indicated a process of change in participants ' cognitive abilities after receiving new information. Health education provides opportunities for adolescents to obtain, understand, and process information about reproductive health so that there is an increase in the ability to answer questions related to the material provided. The learning process that is carried out gradually and repeatedly can help strengthen understanding and maintain information that has been received (Nurmala, 2020).

From the perspective of the Health Belief Model, the success of reproductive health education interventions can be explained through the concept of cues to action, which is the presence of a push or stimulus that encourages individuals to receive and process Health Information. The presence of community nurses as health professionals can be a source of information that increases youth awareness of the importance of maintaining reproductive health. Providing information about the risks and Prevention of reproductive health problems can increase adolescents ' readiness to make healthier decisions (Nurmala, 2020).

Based on the health promotion approach, health workers have an important role in creating an environment that supports changes in people's knowledge and behavior. Community nurses as health educators can be a supporting factor that helps adolescents gain access to true and reliable health information. Educational programs that are carried out on a scheduled and ongoing basis allow changes in knowledge to occur more optimally (Nurmala, 2020).

The results of this study also support the importance of strengthening school-based reproductive health education programs. Research on adolescent reproductive health services



shows that increasing access to information and health services in accordance with the needs of adolescents is an important factor in improving the quality of adolescent reproductive health (Aima & Erwandi, 2024).

Researchers assume that there is still a small percentage of respondents who experience a decrease in scores after the intervention because it can be influenced by individual factors, such as the level of concentration when filling out questionnaires, psychological conditions, or other situational factors. However, the number of respondents who experienced a decrease was relatively small compared to those who experienced an increase, so it did not affect the main conclusion that reproductive health education has a positive impact on increasing knowledge.

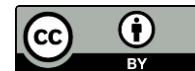
In addition to being statistically meaningful, the increase in knowledge after the intervention also has practical significance for the development of school health programs. The changes in the score indicate that reproductive health education not only results in a statistically significant difference in numbers, but also provides an increase in understanding that can be the basis for the formation of better reproductive health behavior.

Overall, the results of the bivariate analysis showed that reproductive health education provided by community nurses is effective in improving the knowledge of SMA Negeri 9 Padang adolescents. These findings reinforce evidence that the involvement of health workers in school health promotion programs needs to be increased so that reproductive health education can be carried out routinely, systematically, and sustainably. Collaboration between schools and health workers is an important strategy in building a generation of adolescents who have better knowledge and awareness about reproductive health.

CONCLUSIONS

Based on the results of a study conducted on 62 students of Class X and XI of SMA Negeri 9 Padang, it can be concluded that reproductive health education programs provided by community nurses proved effective in improving adolescent knowledge about reproductive health. The four-week health education intervention increased the average knowledge score of respondents from 58.4 before the intervention to 84.7 after the intervention. The increase was seen from the change in the knowledge category, where most respondents (88.7%) increased to the good knowledge category. The results of the analysis using the Wilcoxon test showed a value of $p=0.000$ ($p<0.05$), so there is a significant difference between the level of knowledge before and after reproductive health education. These findings indicate that the involvement of community nurses as health educators has an important contribution in supporting promotive and preventive efforts to improve reproductive health literacy in school youth groups.

Although this study shows positive results, there are some limitations that need to be considered. This study used a one group pretest-posttest design without a control group, so that changes in knowledge that occur can not be fully compared with the group that did not get the intervention. In addition, the study was only conducted in one school with a relatively limited number of samples and using purposive sampling techniques, so the generalization of the results



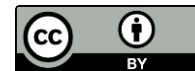
of the study to a wider adolescent population needs to be done carefully. Therefore, further studies are suggested to use experimental designs with control groups, involving a larger and diverse sample, and evaluating the impact of reproductive health education on adolescent reproductive health attitudes and practices.

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